Claims

1. Method for the production of a material, whereby an aluminum-based alloy having a content of 5.5 to 13.0 mass-% silicon and a content of magnesium according to the formula

   Mg [mass-%] = 1.73 x Si [mass-%] + m

   where m = 1.5 to 6.0 mass-% magnesium

   as well as having a copper content between 1.0 and 4.0 mass-% is produced, the base alloy is subsequently heat-formed at least once, as well as subsequently subjected to a heat treatment consisting of solution heat treatment, quenching, and artificial aging.

2. Method according to claim 1, characterized in that the base alloy is produced by means of spray compacting.

3. Method according to claim 1, characterized in that the base alloy is produced by means of the method of continuous casting.

4. Method according to claim 1, characterized in that the base alloy is produced by means of the method of chill casting.

5. Method according to claim 3 or 4, characterized in that the base alloy contains 0.5-1.5 wt.-% magnesium phosphate for the purpose of increasing the grain fineness of the primary magnesium silicide that forms.

6. Method according to one of the preceding claims, characterized in that the base alloy is hot-formed by means of extrusion, hot rolling, or forging.

7. Method according to claim 3, characterized in that the hot forming is carried out with a degree of deformation greater than five times.

8. Method according to one of the preceding claims, characterized in that 1.5 to 3.0 mass-% copper are alloyed in.

9. Method according to one of the preceding claims, characterized in that the aluminum used does not contain more than 1 mass-% foreign elements.

10. Method according to claim 1, characterized in that the material is heated through at 500°C for 2 h, quenched in water, and subsequently annealed at 210°C for 10 h.

11. Material on the basis of an aluminum alloy, which can be obtained by means of a method according to one of claims 1 to 10.

12. Use of the material according to claim 11 for the production of components.

13. Component according to claim 12, namely pistons for internal combustion engines.